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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/813,435  
Filing Date: March 31, 2004  
Appellant(s): POSTUPACK ET AL.

\_\_\_\_\_  
Michael J. Bell (reg. No. 39,604)  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 14, 2009 appealing from the Office action mailed October 27, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

GB 1,010,164	Pittsburgh Plate Glass Co.	11-1965
US 3,573,072	DUKE	03-1971

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1, 6-8, 10-16, 46, 49, 55-59, 61, 64- 66, 68-73, and 78-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent (GB 1,010,164) assigned to PITTSBURGH PLATE GLASS CO and hereafter referred to as GB'164.**

Regarding the identified claims, the GB'164 reference teaches (Example IV-Samples 60-77, Page 12, lines 16-44) a method wherein a "polished" soda-lime silica glass plate is preheated to 1050°C (565°C) for 10 minutes, immersed in a molten salt bath of potassium nitrate for 15-60 seconds at 1050°F, removed from the bath and maintained at 950°F (510°C) for 15 minutes.

With respect to the substrate immersion time, Applicant acknowledges that *typical* chemical strengthening operations utilize an immersion or dip time of 30 minutes to 4 hours (see pg 18, ¶(1047)). As noted by Applicant in the reply dated September 12, 2008 (see quotation bridging pages 8-9), the GB'167 reference teaches treatment times "substantially less than 5 minutes" (pg 3, lines 91-129). While the reference sets forth preferred embodiments having dipping times of 15 seconds, said reference places neither explicit nor implicit limitations upon the shortest dipping times applicable for the process.

Although the prior art explicitly sets forth embodiments wherein a glass plate is immersed into a molten salt bath for times "substantially less than 5 minutes" and as short as 15 seconds, the reference is silent regarding the particular claimed immersion

periods of "10 seconds or less" and "between about 3 and about 5 seconds" as required by dependent claims 6, 49, 64, and 78.

Although the prior art does not explicitly set forth Applicants particularly claimed immersion period of less than 10 seconds, it is the Examiners position that said immersion period would have represented a merely obvious extension over the process explicitly set forth in the prior art.

Specifically, both the prior art process and the claimed invention make use of immersion periods which one of ordinary skill would recognize as significantly shorter than the "typical" processing parameters (e.g. about 3 to 60 seconds for the prior art and the claimed invention versus 1,800 to 14,400 seconds for Applicants admitted "typical process"). In the context of these "typical" immersion conditions, the claimed and prior art immersion times would be viewed as patentably indistinguishable from each other.

With respect to the predictability of the process, one of ordinary skill in the art would recognize that the degree of temper achieved in a chemically strengthened glass sheet is a direct function of the immersion time or contact time with the molten salt bath (e.g. solid state diffusion). All other variables held constant, a reduction in the immersion time would predictably result in a decrease in the ion diffused layer of the glass substrate and thereby result in a decreased temper effect in the chemically tempered glass sheet. It is the Examiners position that the relationship between

immersion time and glass temper is both predictable and established in the art and that one of ordinary skill in the art would have been motivated to try shorter immersion times that those explicitly disclosed in GB '164 as a means to enhance the rate of tempered sheet production.

It follows, absent any compelling evidence of unexpected results from the claimed process conditions, that the claimed process conditions of " 10 seconds or less" and "about 3 to about 5 seconds" would have been derived through no more than routine experimentation and optimization of the prior art disclosed process. Regarding unexpected results from the claimed operating conditions, Applicant has, to date, failed to provide any substantive evidence to suggest that processing a glass sheet for a dip time of 10 seconds or less would yield anything other than a predictable extension over the same glass sheet for 15 seconds. Similarly, Applicant has failed to provide a convincing showing that a dipping time of 10 seconds or less would not reasonably be encompassed by the broader noted processing time of "substantially less than 5 minutes".

In short, Applicants claimed process time of 10 seconds or less is construed to;

- 1) be wholly encompassed by the broader disclosed dipping time of "substantially less than 5 minutes",
- 2) to yield a predictable extension over the preferred embodiment of dipping the glass sheet for 15 seconds, and

- 3) would have reasonably been derived through no more than routine experimentation over the prior art disclosed process for one of ordinary skill in the art seeking to increase the production rate of tempered glass sheets.

While the instant reference teaches a "typical" composition of soda lime silicate glass which is suitable for the inventive method (page 2, lines 31-42), it is silent regarding the strain point and annealing point associated with the composition. Regarding Claim 56, the instant reference clearly indicates that acceptable processing temperatures may range "as high as 1200°F to 1400°F" (Page 3, Lines 51-58)

As evidenced in the disclosure by Grubb (US 3,498,773), a glass material having a composition within the GB'164 experimental range has an annealing point of 1033°F and a strain point of 986°F (Column 9, Lines 66-75). Therefore the GB'164 reference is understood to inherently teach dipping the glass article in a salt bath "at least above the annealing point temperature" and to maintain said article at a temperature "between the strain point temperature and about 150°C below the strain point temperature".

With particular respect to Applicants newly added **claims 73 and 78 to 88**, GB'164 teaches that "it is generally preferable to preheat the surfaces of the glass sheets to be treated to a temperature approximating that at which the molten potassium salt bath is maintained prior to contacting the glass sheets with the treating bath. However, it will be realized that the glass can be heated to a higher temperature than



that at which the potassium salt is maintained, and **the converse is also true.**" (Page 2, lines 97-105)

Regarding **Claims 7, 8, 10 through 12, and 65 to 66** the reference teaches "the potassium nitrate salt can be employed either alone or in conjunction with other potassium salts, e.g., potassium chloride, to constitute the potassium salt treating bath...An exemplary mixed potassium salt treating bath within the purview of the present invention is one having about 70 mole percent potassium nitrate and 30 mole percent potassium chloride. However, the advantages attendant to the method of the present invention can be secured using a potassium nitrate potassium chloride treating bath having a potassium nitrate mole percent ranging from 50 percent to 100 percent. (page 4, lines 89-116)

Regarding **Claims 15 and 68**, the GB'168 reference teaches use of a polished glass substrate however it is silent regarding the nature of the polishing process or that it should specifically be performed by "flame polishing". Flame polishing is a common technique used by practitioners in the Art as a method of attaining a polishing glass performs. Absent any unexpected results to the contrary, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize "flame polishing" to produce the disclosed "polished" glass substrate.

With respect to **Claims 16 and 69**, the GB'168 reference teaches that after treating of the glass article, a thermoplastic layer or "scuff resistant coating" may be

applied to the surface of the glass article (page 5, lines 102-111). Specifically regarding the claimed cleaning step, it would have been obvious to subject the salt treated glass article to subsequent processing steps as routinely practiced in the art (e.g. cleaning residual salt from the treated article and/or applying surface treatments or coatings to said article).

**Claims 9 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent (GB 1,010,164) as applied under 35 U.S.C. 102(b) above in the rejections of Claim 1 and 61, respectively, and in further view of Duke (US 3,573,072).**

GB'164 teaches that the molten salt bath may comprise a mix of potassium salts, however said reference is silent regarding the specific use of potassium sulfate. The Duke reference teaches that "While the nitrate bath may be used at temperatures up to about 600° C. or so, the salt tends to decompose at such high temperatures and severely attack the article surface as well as containers and other equipment. For higher temperature work then, it is convenient to employ a molten salt bath composed of potassium chloride and potassium sulfate and based on a eutectic mixture of these salts. This is a mixture of about 52% KCl and 48% K<sub>2</sub>SO<sub>4</sub> which melts at about 690° C." With the Duke reference in hand, one of ordinary skill in the art at the time of the invention seeking to perform the GB'164 process at temperatures above about 600°C would obviously made use of a salt bath comprising potassium sulfate as taught by Duke. The use of potassium sulfate would have been an obvious approach due to the

greater stability and lower chemical reactivity of this composition at elevated temperatures.

### **(10) Response to Argument**

Rejection of Claims under 35 U.S.C. §103(a) over GB'164:

#### **Argument #1)**

Applicant alleges (see Appeal Brief, page 5) that the dip time of "substantially less than 5 minutes" as set forth in the prior art reference is not equivalent to the recited range. Applicant further argues that the mere presence of a teaching of 15 seconds is not equivalent to 10 seconds or less. Applicant concludes stating that the prior art ranges are not overlapping, the ranges are not close, and it cannot be concluded that (the ranges) are "equivalent, similar, or obvious".

The Examiner respectfully disagrees.

#### **(I) Prior art broad range encompasses Applicants recited dip time**

In response, Applicant is advised that the prior art disclosed dip time of "substantially less than 5 minutes" is reasonably construed to encompass dip times in the range greater than zero and less than five minutes. As such, the broad range does overlap Applicants recited range of 10 seconds or less.

(II) The prior art preferred embodiment is patentably indistinct from the recited range in the context of Applicants admitted conventional or typical dip times

Further, the prior stated range of 15 seconds would be construed by one of ordinary skill in the art as very close to the recited range of 10 seconds or less particularly where Applicant admits that the "typical" or conventional dip times in similar glass tempering operations range from 1,800 to 14,400 seconds.

That is, although Applicant argues that the prior art discloses a preferred embodiment which employs a dip time of 15 seconds and that the dip time of said preferred embodiment "50% larger than the upper limit of the claimed range", in the context of the typical prior art processing conditions the difference between the prior art preferred embodiment and the recited range is vanishingly small. Specifically, the contested difference in dip times between the recited range and the prior art disclosed embodiment, namely 5 seconds, constitutes but a small fraction of conventional dip times (e.g. 0.035%-0.2% of conventional dip timeframes).

In short, Applicant was advised that absent compelling evidence of unexpected results, the recited dip time is construed to be wholly encompassed by the prior art recited range of "substantially less than five minutes", is patentably indistinct from the prior art disclosed embodiment of 15 seconds, and would reasonably have been derived by a skilled technician through no more than routine experimentation and optimization of the prior art disclosed process conditions.

(III) Applicant has presented no evidence to suggest unexpected results arise from recited processing conditions

Finally, Applicant is respectfully advised that to date no compelling evidence has been presented to demonstrate or even suggest that the recited dip time constitutes anything more than a predictable and obvious modification to the prior art disclosed range.

**Argument #2)**

Applicant alleges (see Appeal Brief, page 5) that the GB'164 patent does place limitations by indicating that increasing the dip time improves the strength of the glass and by providing a lowest contemplated dipping time of 15 seconds.

The Examiner disagrees.

The preferred embodiment of 15 seconds as set forth in the GB'164 is in no manner construed to be limiting where the broader range of "substantially less than 5 minutes" is explicitly contemplated by the reference. Further, although Applicant recognizes a benefit to be derived from extended dip times, namely increased temper strength, this does not materially detract from the Examiner stated motivation to pursue shorter dip times, namely increased product throughput. Further, Applicant has presented no evidence to prove or even suggest that the GB'164 process is not enabled for dip times in the range of 10 seconds or less or that such a dip time yields any

unexpected or unpredictable result within the range of "substantially less than 5 minutes" as disclosed in the prior art reference.

**Argument #3)**

Applicant argues (see Appeal Brief, page 6) that the GB'164 reference teaches away from the use of short dip times of less than 5 minutes. Specifically, Applicant points to the prior art reference section (GB'164, p.3, lines 91-129) which states in pertinent part "another factor *to be considered* when lower contact times ... are employed is the effect the higher treating temperature can have upon viscosity characteristics of the glass article being treated" (*emphasis added*).

In response, Applicant is advised that the mere observation that the prior art teaches that glass viscosity is "another factor to be considered" for short processing times is not equivalent to a teaching away from such a processing condition. To the contrary, the prior art explicitly contemplates dip times of "substantially less than 5 minutes" which as noted above is construed to encompass Applicants recited range. Stated alternately, the prior art explicitly demonstrates that the process is enabled both for the preferred embodiment of 15 seconds as well as the broader range of "substantially less than 5 minutes".

**Argument #4)**

Applicant alleges GB 164 "does not disclose a range of 5 minutes or less; it teaches range of 15-60 seconds". Applicant later states that "there is no evidence in the

GB164 reference or the body of the prior art as a whole that suggests or teaches a range of 10 seconds or less”

On this point, the Examiner strongly disagrees

Applicant has repeatedly acknowledges that the prior art teaches a range of “substantially less than 5 minutes”. Although the prior art may additionally teach a preferred range of 15 to 60 seconds, this does not suggest that dip times shorter than 15 seconds are not enabled for the prior art process where the broader range which includes shorter dip times is clearly contemplated. Further, Applicant has presented no evidence to suggest that the prior art process is not enabled for shorter dip times.

#### **Argument #5)**

Applicant alleges (see page 8) that “the claimed range is in no way predictable” and that it is a separate and much shorter time period that applicants have invented.

In response and as repeatedly noted above, the prior art disclosed range of “substantially less than 5 minutes” is construed to encompass Applicants recited range of “10 seconds or less”. Where the prior art explicitly teaches a preferred embodiment having a dip time of 15 seconds, which one of ordinary skill would appreciate is very close to the recited range of 10 seconds or less when viewed in the context of “typical” processing conditions, Applicants allegation that the claimed range is “in no way predictable” is deemed to be unpersuasive.

Specifically, Applicant has presented no evidence to demonstrate or even suggest that the shorter dipping period constitutes an unexpected range with in the

broader contemplated range of "substantially less than 5 minutes". Since Applicant has provided no conclusive evidence in support of the instant allegations, it follows that said allegations are held to be mere conjecture and attorney argument.

The Official policy regarding Attorney argument is clearly outlined in MPEP §2145 [R-3];

"Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art. The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.

#### **Argument #6)**

Applicant finally argues that "the method of the prior art is not one that enables sufficient strengthening or proper processing of the glass within a time range of 10 seconds or less". In support of this position, Applicant alleges that due to the processing temperature of the prior art salt bath, the molten salt would drip off the glass upon removal of the sheets from the molten salt bath. Applicant thereby concludes that



under such conditions the prior art process would not enable sufficient strengthening of the glass substrates.

In response, Applicant is respectfully advised that absolutely no evidence has been made of record to support the above allegations or to suggest that the prior art process is not enabled for dip times of "10 seconds or less". Therefore, the instant arguments are held to constitute mere conjecture and unsubstantiated Attorney argument and for at least this reason Applicants arguments on this matter are deemed unpersuasive.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jason L Lazorcik/

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